

WHAT IS CLAIMED IS:

1. A printer comprising:
  - a paper transport unit that transports paper fed thereto;
  - a print unit that prints on the paper, including a print
  - 5 head;
  - a downstream sensor mounted on the print head and capable of detecting the paper;
  - an upstream sensor disposed upstream of the downstream sensor in a paper-transport-direction and capable of detecting
  - 10 the paper;
  - a first measuring unit configured to make the paper transport unit transport the paper at a first speed of low speed while making the upstream sensor detect a rear end of the paper, and to make the paper transport unit transport the paper till
  - 15 the downstream sensor detects the rear end of the paper, so as to obtain a first transport distance with which the paper has been transported since being detected by the upstream sensor and till being detected by the downstream sensor;
  - a second measuring unit configured to make the paper
  - 20 transport unit transport the paper at a second speed of high speed while making the upstream sensor detect the rear end of the paper, and to make the paper transport unit transport the paper till the downstream sensor detects the rear end of the paper, so as to obtain a second transport distance with which
  - 25 the paper has been transported since being detected by the

upstream sensor and till being detected by the downstream sensor;

a response delay calculating unit configured to calculate a response delay time of the upstream sensor according to a difference between the first transport distance and the second transport distance; and

a correction unit configured to correct a remaining printable distance on a paper rear end side after detecting the rear end of the paper by the upstream sensor, on the basis of the response delay time.

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2. The printer according to claim 1,

wherein the upstream sensor comprises a mechanical sensor including a detector to be in contact with paper to be detected; and the downstream sensor comprises an optical sensor.

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3. The printer according to claim 2,

wherein the correction unit includes an upstream sensor correcting unit configured to calculate a paper transport distance in the response delay time when the upstream sensor detects absence of paper; and the remaining printable distance is corrected on the basis of the paper transport distance calculated by the upstream sensor correcting unit.

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4. The printer according to claim 1,

25 wherein the first speed is a minimum speed for transporting

paper in a printing operation of the printer; and

the second speed is a maximum speed for transporting paper in a printing operation of the printer.

5     5.     The printer according to claim 4,  
          wherein the minimum speed corresponds to a paper transport speed for performing the printing operation in the highest resolution that is executable by the printer.

10    6.     The printer according to claim 4,  
          wherein the maximum speed corresponds to a paper transport speed for performing the printing operation in the lowest resolution that is executable by the printer.

15    7.     The printer according to claim 4,  
          wherein the maximum speed is equivalent to a paper transport speed while the print head is not being driven.

8.     The printer according to claim 1,  
20        wherein the print unit further includes a carriage on which the print head is mounted, the carriage configured to move reciprocally in a direction substantially perpendicular to a paper transport direction; and

the downstream sensor is mounted on the carriage.

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9. The printer according to claim 1,  
wherein the upstream sensor is disposed at a position  
where the upstream sensor is turned off while paper transporting  
operation for print is being performed.

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10. The printer according to claim 9,  
wherein the upstream sensor is disposed upstream of the  
print unit at a distance at least corresponding to the length  
of a printing region of the print unit from an upstream end  
10 of the print unit.

11. The printer according to claim 1,  
wherein the downstream sensor is disposed in a region  
in a paper transporting direction where the print unit performs  
15 a printing operation

12. A printing method in a printer, wherein the printer  
includes a downstream sensor capable of detecting paper, and  
an upstream sensor disposed upstream of the downstream sensor  
20 in a paper-transport-direction and capable of detecting the  
paper, the method comprising:

detecting a rear end of the paper by the upstream sensor  
and the downstream sensor while transporting the paper at a  
first speed of low speed;

25 obtaining a first transport distance with which the paper

has been transported since being detected by the upstream sensor and till being detected by the downstream sensor, while transporting the paper at the first speed;

detecting the rear end of the paper by the upstream sensor  
5 and the downstream sensor while transporting the paper at a second speed of high speed;

obtaining a second transport distance with which the paper has been transported since being detected by the upstream sensor and till being detected by the downstream sensor, while  
10 transporting the paper at the second speed;

calculating a response delay time of the upstream sensor from a difference between the first transport distance and the second transport distance; and

correcting a remaining printable distance on a paper rear  
15 end side after detecting the rear end of the paper by the upstream sensor, on the basis of the response delay time.

13. The method according to claim 12, wherein the correcting step includes: calculating a paper transport distance in the  
20 response delay time when the upstream sensor detects absence of paper; and correcting the remaining printable distance on the basis of the paper transport distance.

14. A printer, comprising:  
25 a downstream sensor capable of detecting paper;

an upstream sensor disposed upstream of the downstream sensor in a paper-transport-direction and capable of detecting the paper;

means for obtaining a first transport distance with which  
5 the paper has been transported since being detected by the upstream sensor and till being detected by the downstream sensor, while transporting the paper at a first speed of low speed;

means for obtaining a second transport distance with which  
the paper has been transported since being detected by the  
10 upstream sensor and till being detected by the downstream sensor, while transporting the paper at a second speed of high speed;

means for calculating a response delay time of the upstream sensor from a difference between the first transport distance and the second transport distance; and

15 means for correcting a remaining printable distance on a paper rear end side after detecting the rear end of the paper by the upstream sensor, on the basis of the response delay time.